Total Transportation Services, Inc.

Houston, Texas

Key Project Information

Equipment: Drayage Trucks
Project: New Hydrogen Fuel Cell Trucks
Number of Trucks: 40
Project Year: 2012

Houston is home to some of the worst air quality in the nation. Stakeholders banded together to support the introduction of a zero-emission technology into market to haul freight at the Port of Houston. Made possible by a grant awarded by the U.S. DOE, this project is a two-year demonstration of hydrogen fuel cell vehicles in real world conditions at the Port of Houston. The project will help Total Transportation Services, Inc. (TTSI) and other operators evaluate the true viability of introducing Class 8 hydrogen fuel cell electric hybrid trucks into its Alternative Fuel Vehicle (AFV) fleet. The initial expectation is that the new hydrogen fuel cell trucks will enable TTSI to eliminate harmful greenhouse gases and cut operating and maintenance costs while delivering performance and meeting the environmental, economic and social needs of the communities they serve. Should this demonstration project at the Port of Houston ultimately achieve the expected benefits of the zero-emission Hydrogen fuel cell trucks, TTSI will be incorporating these vehicles into their national operations as soon as practical. Long-term benefits of demonstration of this technology include reduction of pollutant emissions from port drayage operations, one of the largest sources of emissions at any port.

The vehicles proposed for this project are the Vision Industries Corporation (Vision) TYRANO™. With over 80 percent of the truck components manufactured and assembled in the United States, the TYRANO™ is a heavy-duty vehicle weighing 19,000 pounds that runs on a hydrogen fuel cell plus plug-in hybrid electric batteries. A hydrogen fuel cell-powered truck has an electric motor powered by Lithium-ion batteries. The batteries are constantly charged by a fuel cell that converts hydrogen gas into electricity. The batteries can also benefit from the use of regenerative braking to incrementally add charge.

Estimate Project Benefits:

- CO₂ Reduced – 65,340 tons
- NOₓ Reduced – 22,845 tons
- PM Reduced – 420 tons
- Diesel Savings – 6,000,000 gal
- Fuel Cost Savings – $27,000,000